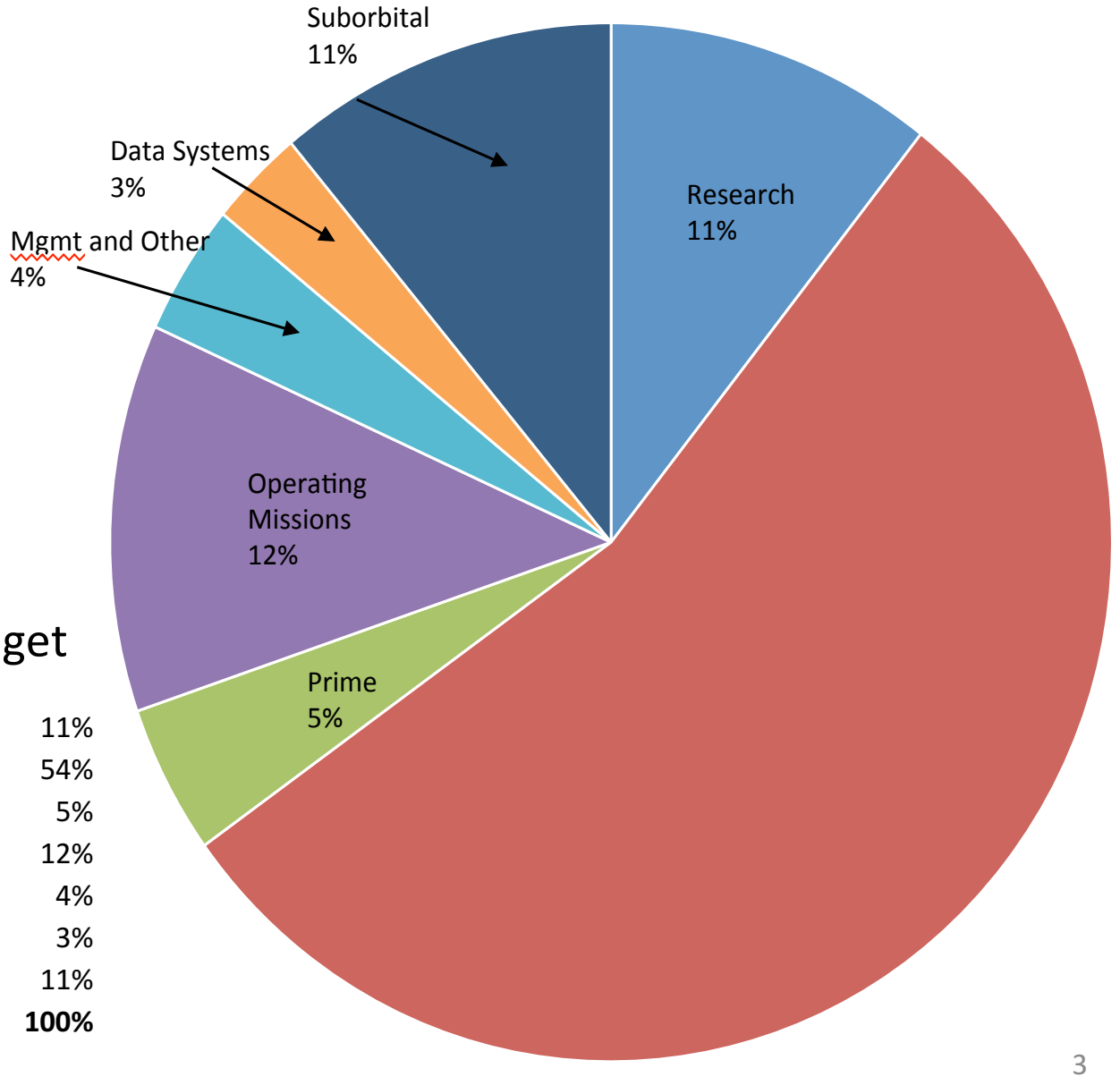
Heliophysics Division Update
Heliophysics Subcommittee
08 August 2016
Steven W. Clarke, Director

Update Topics

- **Welcome and Opening Remarks**
- **Budget Update**
- **Program Overview**
- **Research & Analysis**
- **Division Assignment Changes**
- **International Partnerships**
- **FACA**

Heliophysics Budget



FY2016 Heliophysics Budget

Research	68,658	11%
Development	352,466	54%
Prime(MMS)	30,138	5%
Operating Missions	78,170	12%
Management and Other	26,424	4%
Data Systems	19,890	3%
Suborbital	71,420	11%
Total	**647,166**	**100%**

Heliophysics Budget

$M	FY15	FY16 Enacted	FY17	FY18	FY19	FY20	FY21
Heliophysics	636.1	647.2	698.7	684.0	698.3	714.8	723.9

- Missions in development fully funded
  - ➢ Space Environments Testbed-1 (SET-1) – NET March 2017
  - ➢ Ionospheric CONnection Explorer (ICON) – October 2017
  - ➢ Global Observation of the Limb and Disk (GOLD) – April 2018
  - ➢ Solar Probe Plus (SPP) – July 2018
  - ➢ Solar Orbiter Collaboration (SOC) – October 2018
- Future mission funding
  - ✓ Release Explorer mission AO/MoO in FY16
  - ➢ Release STP-5 (IMAP) mission AO/MoO in FY17
  - ➢ Release LWS-7 (GDC) mission AO/MoO in FY18
- OMB Mandatory Spending (FY2017 only):
  - – +$10.0M for Heliophysics/Cubesat program
  - – +$10.0M for Heliophysics/Space weather research in support of the Space Weather Action Plan
  - – +$5.0M for Research & Analysis

Operating Missions

HELIOPHYSICS

Mission	Launch	Phase	Extension to (*)	M-3	M-2	M-1	Cur. M.	Remarks
Geotail	7/24/1992	Extended	12/31/2016					
STEREO	10/25/2006	Extended	9/30/2018					Still no response from B. Project plan forward accepted by HQ 6/13.
THEMIS+Artemis	2/17/2007	Extended	9/30/2018					on 6/15 D lost of data: 7/2 A lost 31h of data. Both antenna issues.
AIM	4/25/2007	Extended	9/30/2018					
Hinode	9/23/2006	Extended	9/30/2018					
ACE	8/27/1997	Extended	9/30/2018					
RHESSI	2/5/2002	Extended	9/30/2018					
SOHO	12/2/1995	Extended	9/30/2018					
TIMED	12/7/2001	Extended	9/30/2018					
Voyager 1 + 2	8/20/1977	Extended	9/30/2018					
TWINS A + B	6/2006 & 3/2008	Extended	9/30/2018					
IBEX	10/19/2008	Extended	9/30/2018					Star tracker issue resolved.
Wind	11/1/1994	Extended	9/30/2018					
SDO	2/11/2010	Extended	9/30/2018					
Van Allen	8/30/2012	Extended	9/30/2018					
IRIS	6/27/2013	Extended	9/30/2018					Star Tracker issues should be closed soon.
MMS	3/12/2015	Prime	9/1/2017					Star tracker issue resolved.

(*) Extended mission end dates subject to upcoming Senior Reviews. (+) Terminates at date.

Mission proceeding to meet science requirements

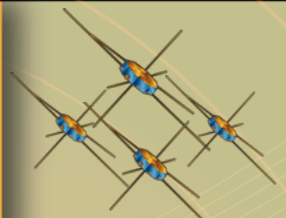
Area of concern - possible reduction in capability

Significant problem – possible or probable loss of mission

Heliophysics Program 2015-2024

HELIOPHYSICS

Solar Terrestrial Probes

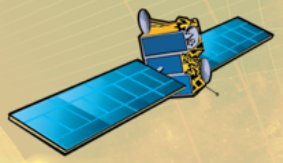


Magnetospheric Multiscale (MMS) March 2015

Interstellar Mapping Probe (IMAP) (STP #5) 2023*

Heliophysics MO 2023*

Living With a Star

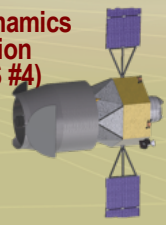


Space Environment Testbeds (SET) NET March 2017

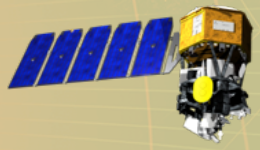
Solar Probe Plus July 2018

Solar Orbiter Collaboration (with ESA) October 2018

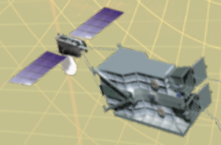
Geospace Dynamics Constellation (GDC)(LWS #4) 2024*



Explorers



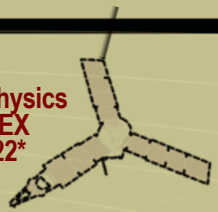
Ionospheric Connection Explorer (ICON) October 2017



Global-scale Observations of the Limb and Disk (GOLD) April 2018

Heliophysics MO 2020*

Heliophysics SMEX 2022*



Heliophysics MO 2022*

Heliophysics MIDEX 2024*

Heliophysics MO 2024*

Research Program

Solar/Heliospheric - June 2016
Solar/Heliospheric - July 2016
Solar/Heliospheric - August 2016

GRIPS - January 2016

BARREL- August 2016

Ongoing

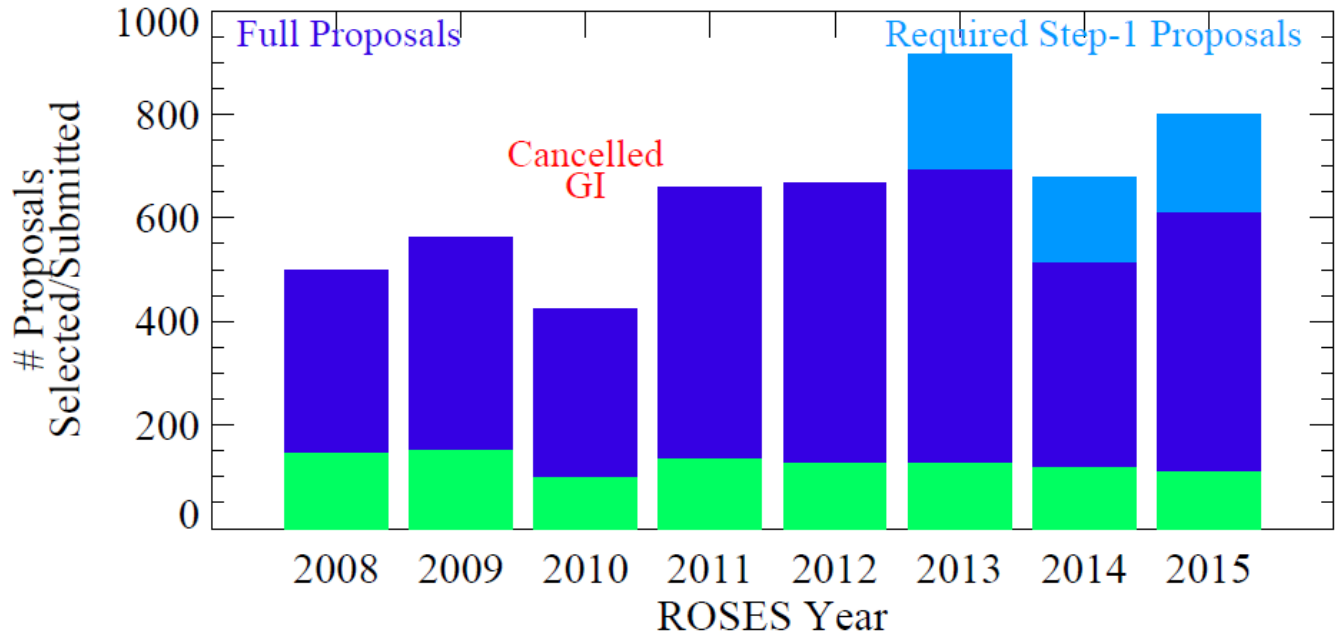
Heliophysics Missions
Astrophysics Missions
Planetary Missions

2015 2016 2017 2018 2019 2020 2021 2022 2023 2024

*Notional

HPD 2015 ROSES Complete

ELEMENT	STEP 1 PROPOSALS	STEP 2 PROPOSALS	AWARDS	YEAR 1 ($M)
B.2 H-SR	343	251	46	5.5
B.3 H-TIDeS	135	106	12	4.7
B.4 H-GI	204	149	22	2.9
B.6 H-LWS	103	92	20	3.5
B.7 H-IDEE	15	14	8	0.5
TOTALS	**799**	**612**	**108**	**17.1**



ROSES15 Average Success Rate (vs. Full Proposals): 18%

Heliophysics Division - Science Mission Directorate

21 July 2016

Director
Steve Clarke

Deputy Director
Peg Luce

Resource Management
Ralph Beaty[+]
Jennifer Holt[+]

Chief Scientist – *Vacant*

Secretary: *Gloria Stewart*
Admin Asst: *Aaluk Edwardson**
Program Support Specialist: *Jackie Mackall*

Cross Cutting

Education Lead: *Lika Guhathakurta*
Career Enhancement for New Technologists and Scientists (CENTS): *Liz MacDonald**
Division Public Affairs: *Dwayne Brown*
Emerging Partnerships Lead: *Lika Guhathakurta*
Space Weather Lead: *Elsayed Talaat*
Chief Technologist: *Dan Moses*
- SMD Cubesat Implementation Program (SCIP)

Policy Analyst: *Jeremy Stembler*[+]
Interagency/International Relations: *Jake Parsley*

Heliophysics Research

Program Manager: *Arik Posner*

Program Support: *Guan Le, Terry Kucera, EJ Summerlin*, Katya Werner**

Grand Challenge (GCR): *Mona Kessel*

- *Lika Guhathakurta – Heliophysics Science Centers*

Guest Investigator (GI): *EJ Summerlin**

Infrastructure & Data Environment Enhancements (IDEE): *Jeff Hayes*

Supporting Research (SR): *Arik Posner (SH)/Elsayed Talaat (Mag/ITM)*

TIDeS: *Dan Moses/Liz MacDonald* (Deputy Program Scientist)*

[+] *Member of the Resources Mgmt Division or Strategic Integration and Mgmt Division*
* *Detailee, IPA, or contractor*

Programs / Missions

	Program Scientist	*Program Executive*
Living With a Star (LWS)		
Program	***Elsayed Talaat***	***Joe Smith***
Science	***Jeff Morrill****	
SET	TBD	*Alan Zide**
SOC	*Jeff Morrill**	*Joe Smith/Alan Zide**
SPP	*Elsayed Talaat*	*Joe Smith*
Solar Terrestrial Probes (STP)		
Program	***Mona Kessel***	***Bill Stabnow***
IMAP	*Arik Posner*	*Joe Smith*
Explorers		
Program	***Dan Moses***	***Willis Jenkins***
ICON	*Jeff Morrill**	*Willis Jenkins*
GOLD	*Elsayed Talaat*	*Bill Stabnow*
EXP-XX	*TBD*	*TBD*
Sounding Rockets & Range		
Program	***Dan Moses***	***George Albright***
	Deputy PS: Liz MacDonald*	
Operating Missions		***Jeff Hayes***
ACE	*Arik Posner*	
AIM	*Elsayed Talaat*	
Geotail	*Mona Kessel*	
Hinode	*TBD*	
IBEX	*Arik Posner*	
IRIS	*Lika Guhathakurta*	
MMS	*Mona Kessel*	
RHESSI	*TBD*	
SDO	*Lika Guhathakurta*	
SOHO	*Lika Guhathakurta*	
STEREO	*Lika Guhathakurta*	
THEMIS	*Elsayed Talaat*	
TIMED	*Elsayed Talaat*	
TWINS	*Mona Kessel*	
Van Allen	*Mona Kessel*	
Voyager 1 & 2	*Arik Posner*	
Wind	*Arik Posner*	

- ***PS – Vacancy***
- ***PE - Vacancy***

Blue – In Development
Green – Pre-Formulation

International Collaboration Update

- Korea Astronomy and Space Science Institute (KASI)
  - Working group charter signed at KASI on 25 May
  - Final membership and kickoff meeting is scheduled for 21 September
  - Potential collaboration areas include data analysis, modeling and flight projects

- Japan Aerospace Exploration Agency (JAXA)/European Space Agency (ESA)
  - Multilateral science objectives team established to study the next generation solar physics mission using the Solar-C concept as point of departure
  - 3 co-chairs (NASA, JAXA, ESA)
  - 12 members from the US, Japan and Europe (4 each)
  - Kickoff meeting held on 13 July
  - Draft report due in 9 months (April 2017); final report due in July 2017

- Indian Space Research Organisation (ISRO)
  - Working group charter In approval review by NASA and ISRO
  - Proposed areas of collaboration include:
    - Modeling of solar activity
    - Joint observations and data analysis
    - Ground-based observations

Evolution of the Heliophysics Subcommittee

- NASA has decided to apply for FACA charters for the four science advisory subcommittees, including the Heliophysics Subcommittee.
- Many community-based studies (e.g., Senior Reviews, Science and Technology Definition Teams) require a chartered Federal Advisory Committee to which to report.
- Once chartered, this Heliophysics Subcommittee (HPS) will be replaced by the Heliophysics Advisory Committee (HPAC).
  - All current HPS members will be appointed to the HPAC.
  - Meeting schedule and member expectations will be unchanged.
- The Heliophysics Advisory Committee will report to the Director of the Heliophysics Division.
- The HPAC Chair will continue to serve as a member of the NAC Science Committee.
- Once the Heliophysics Advisory Committee is chartered, then the Director of the Heliophysics Division will establish subordinate groups, such as:
  - Senior Reviews
  - Future Science and Technology Definition Teams (STDT) (e.g., GDC)

Questions?